

Research in Fundamental Physics on the International Space Station

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Investigators interested in performing high-resolution fundamental physics experiments in a free-fall environment have previously used the Space Shuttle to accomplish their objectives. As we come to the end of the Shuttle era, investigators working with NASA will instead be offered the opportunity to perform research aboard the International Space Station (ISS). The ISS allows a much longer extended free-fall than the approximately 2 weeks available for research on the Space Shuttle. Current plans to develop a 6-month liquid helium facility for the ISS will be discussed and summaries of planned research in many particle phenomena will be presented. The presentation will also cover the plan for performing space research in the field of laser-cooled atoms and molecules. Space technologies are under development to enable the operation of highly precise clocks and to study atom interferometers and Bose-Einstein Condensates.